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# Federal Research and Development in the FY 2004 Budget

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May 1, 2003

Virginia Higher Education Research Summit

See <http://www.aaas.org/spp/rd> for more

(see the “What’s New” section for the latest AAAS R&D analyses; see  
“Seminars and Presentations” section for copies of these charts)

Science & Policy Programs



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## The Budget Situation: More Deficits, More Tax Cuts, But More Defense and Homeland Security

- \$1.5 trillion in proposed tax cuts over the next decade (larger than \$1.35 trillion 2001 tax cuts)
- Record budget deficits, with no return to surpluses in sight
- Iraq war and reconstruction costs still unknown
- \$400 billion over 10 years for Medicare drug benefits?
- Proposed increases for defense and homeland security
- Restraint for domestic discretionary spending

Science & Policy Programs



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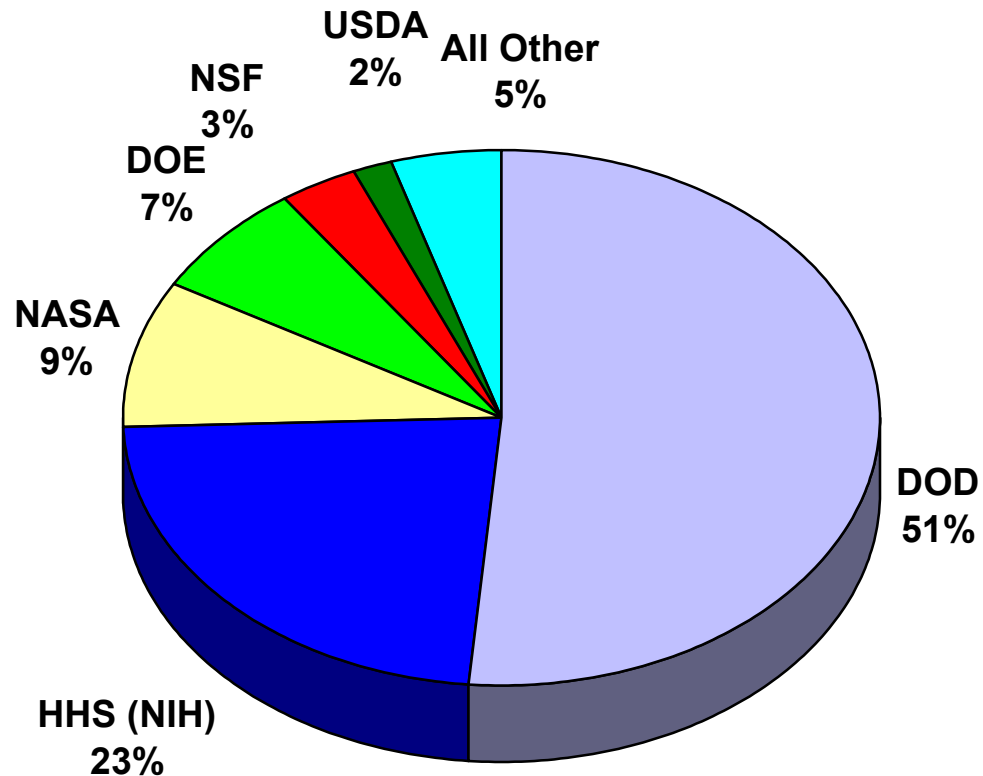
## R&D in the FY 2004 Budget

- FY 2004 request for R&D \$122 billion, up 4.4 percent from FY 2003 (\$117 billion)
- Large proposed increases for DOD development and homeland security R&D
- Nondefense R&D would barely increase (+0.1%)
- Modest increases for basic and applied research (+1.3%) to \$54 billion, but non-NIH research funding would fall 3.4 percent

Science & Policy Programs

## Total R&D by Agency: FY 2004 Proposed

Budget Authority in billions of dollars



Total R&D =  
\$122.5 billion  
(revised)

Source: AAAS, based on OMB R&D Budget Data and agency estimates for FY 2004.

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## AAAS Analysis of R&amp;D in the FY 2004 Budget

**Table 1. R&D in the FY 2004 Budget by Agency**

(budget authority in millions of dollars)

	FY 2002 Actual	FY 2003 Estimate 1/	FY 2004 Budget	Change FY 03-04 Amount	Percent
<b>Total R&amp;D (Conduct and Facilities)</b>					
Defense (military)	49,877	58,646	<b>62,821</b>	4,175	7.1%
<i>S&amp;T (6.1-6.3 + medical)</i>	10,337	11,232	<b>10,297</b>	-935	-8.3%
<i>All Other DOD R&amp;D</i>	39,539	47,415	<b>52,524</b>	5,109	10.8%
Health and Human Services	24,016	27,550	<b>28,203</b>	653	2.4%
<i>Nat'l Institutes of Health</i>	22,714	26,245	<b>26,946</b>	700	2.7%
NASA	10,224	10,999	<b>11,025</b>	26	0.2%
Energy	8,078	8,205	<b>8,535</b>	330	4.0%
<i>NNSA and other defense</i>	3,761	3,849	<b>4,180</b>	330	8.6%
<i>Office of Science</i>	3,074	3,075	<b>3,066</b>	-9	-0.3%
<i>Energy programs</i>	1,244	1,281	<b>1,289</b>	8	0.6%
Nat'l Science Foundation	3,525	3,927	<b>4,035</b>	109	2.8%
Agriculture	2,112	2,166	<b>1,943</b>	-223	-10.3%
Commerce	1,227	1,248	<b>1,100</b>	-148	-11.9%
<i>NOAA</i>	677	684	<b>675</b>	-9	-1.4%
<i>NIST</i>	503	527	<b>410</b>	-117	-22.1%
Interior	623	627	<b>633</b>	6	1.0%
Transportation	778	702	<b>693</b>	-9	-1.2%
Environ. Protection Agency	592	643	<b>607</b>	-37	-5.7%
Veterans Affairs	756	800	<b>822</b>	22	2.8%
Education	265	315	<b>275</b>	-40	-12.8%
Homeland Security *	266	669	<b>1,001</b>	332	49.6%
All Other	760	798	<b>792</b>	-6	-0.7%
<b>Total R&amp;D</b>	103,100	117,297	<b>122,485</b>	5,189	4.4%
Defense R&D	53,731	62,986	<b>67,515</b>	4,530	7.2%
Nondefense R&D	49,368	54,311	<b>54,970</b>	659	1.2%
<i>Nondefense R&amp;D excluding NIH</i>	26,654	28,066	<b>28,024</b>	-42	-0.1%
Basic Research	23,848	26,048	<b>26,861</b>	813	3.1%
Applied Research	24,407	26,878	<b>26,870</b>	-8	0.0%
Development	49,412	58,599	<b>64,284</b>	5,684	9.7%
R&D Facilities and Equipment	5,432	5,772	<b>4,471</b>	-1,301	-22.5%

Source: AAAS, based on OMB data for R&D for FY 2004, agency budget justifications, and information from agency budget offices.

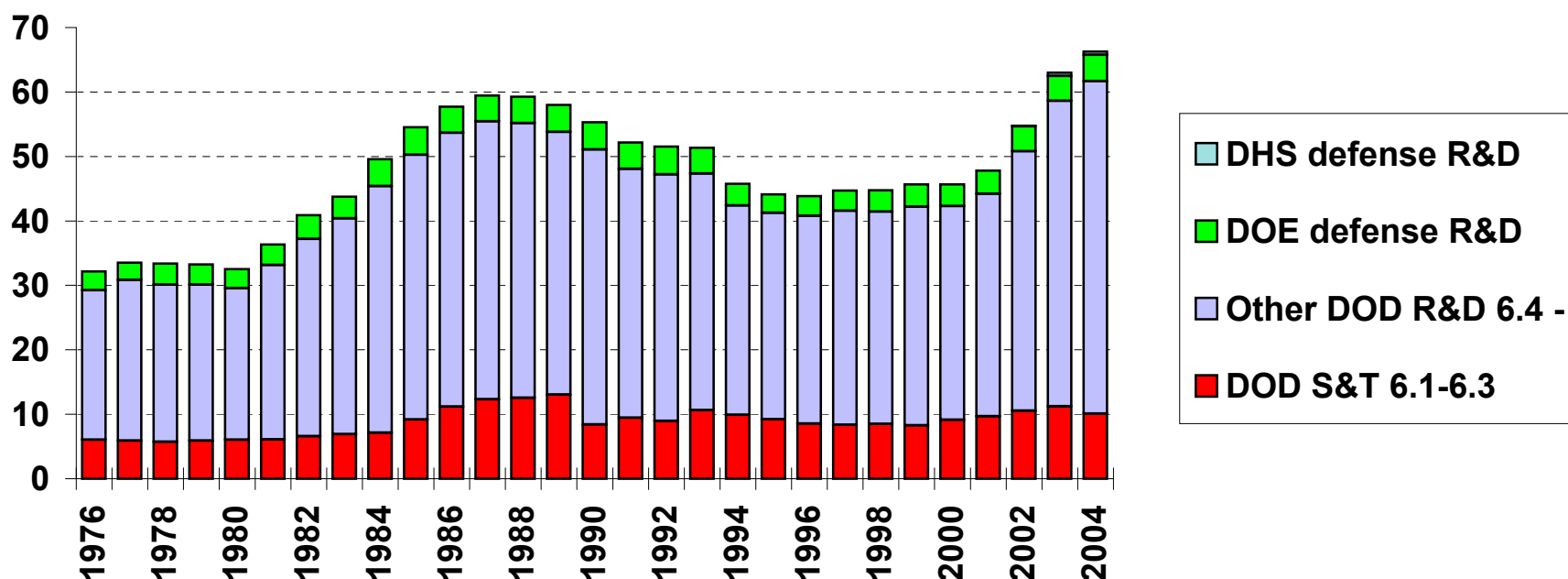
\* DHS figures for all years adjusted to include programs to be transferred to DHS from other agencies.

1/ FY 2003 figures revised to reflect AAAS estimates of final FY 2003 appropriations.

**AAAS - REVISED March 7, 2003**

## Trends in Defense R&D, FY 1976-2004

in billions of constant FY 2003 dollars

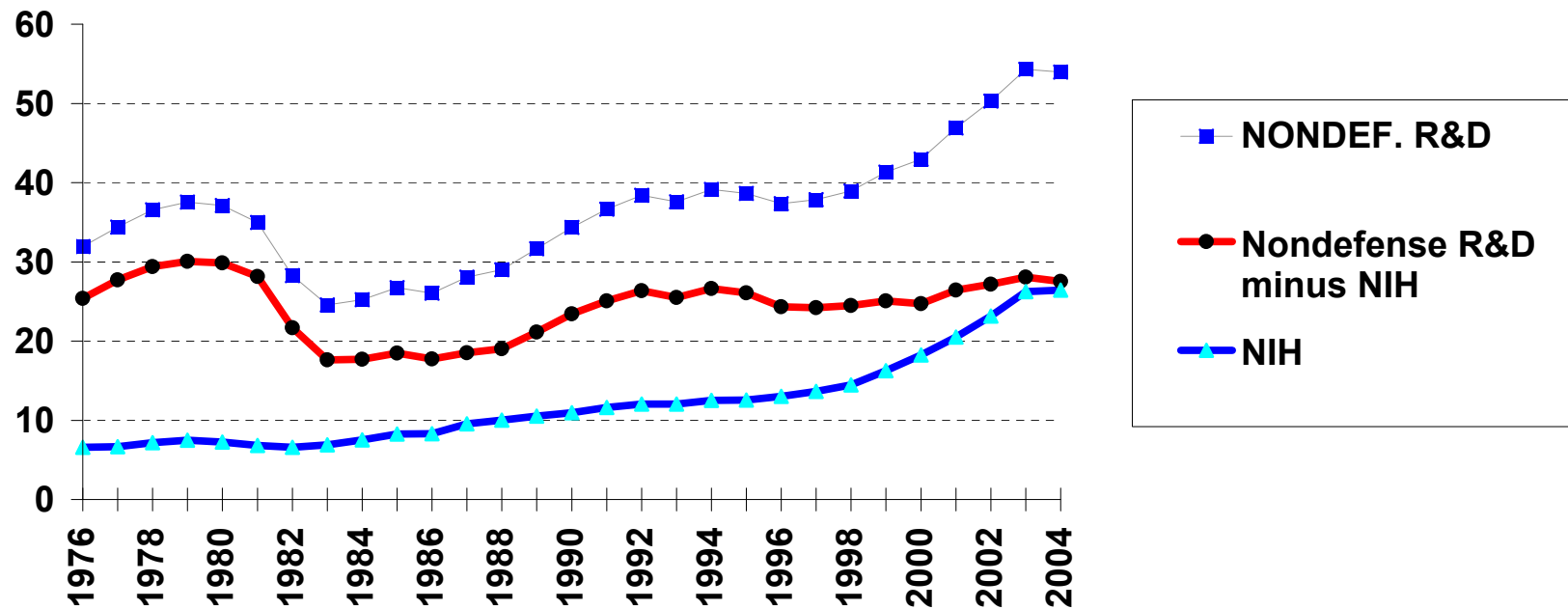


Source: AAAS analyses of R&D in *AAAS Reports / XXVIII*. FY 2004 figures are President's request; FY 2003 figures are latest estimates. DOD S&T figures are not strictly comparable for all years because of changing definitions. Includes conduct of R&D and R&D facilities.  
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## Selected Trends in Nondefense R&D, FY 1976-2004

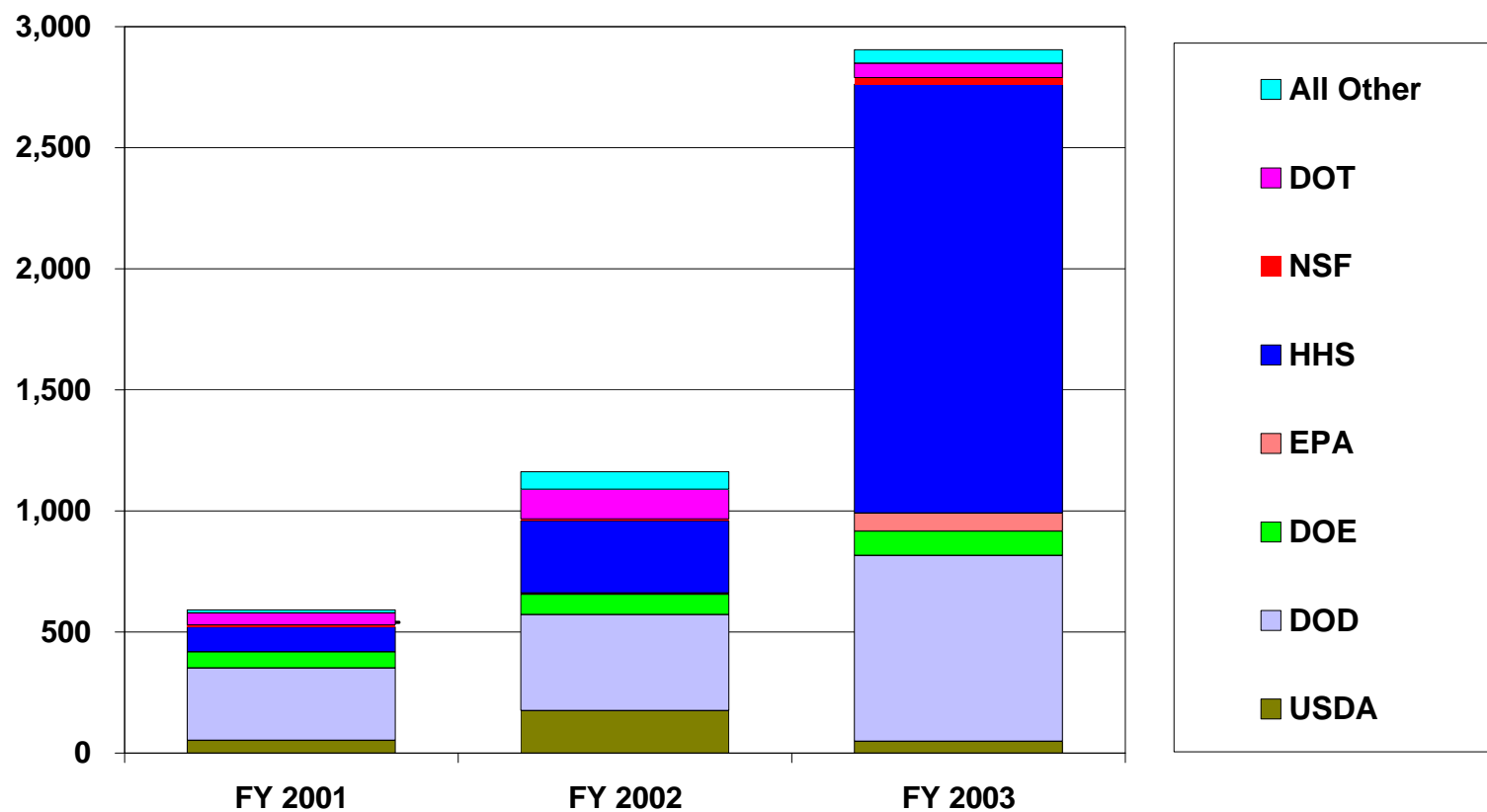
in billions of constant FY 2003 dollars



Source: AAAS analyses of R&D in *AAAS Reports VIII*  
XXVIII. FY 2004 figures are President's request; FY 2003  
figures are AAAS estimates of final FY 2003  
appropriations.  
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## Federal Counter-Terrorism R&D, by Agency

(budget authority in millions of dollars, FY 2001 - 2003)



Source: Office of Management and Budget. FY 2002 figures include emergency response fund; FY 2003 figures represent President's request.  
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## Dept. of Homeland Security

- DHS began operations in March, but will take years to become fully operational
- \$1.0 billion R&D portfolio in FY 2004, up 50 percent from FY 2003
- Bioterrorism R&D portfolio stays in NIH; DHS will have priority-setting role
- New Homeland Security Advanced Research Projects Agency (HSARPA) will be created in DHS on the DARPA model; funding priorities and levels unclear

# Impacts of Federal R&D in Virginia

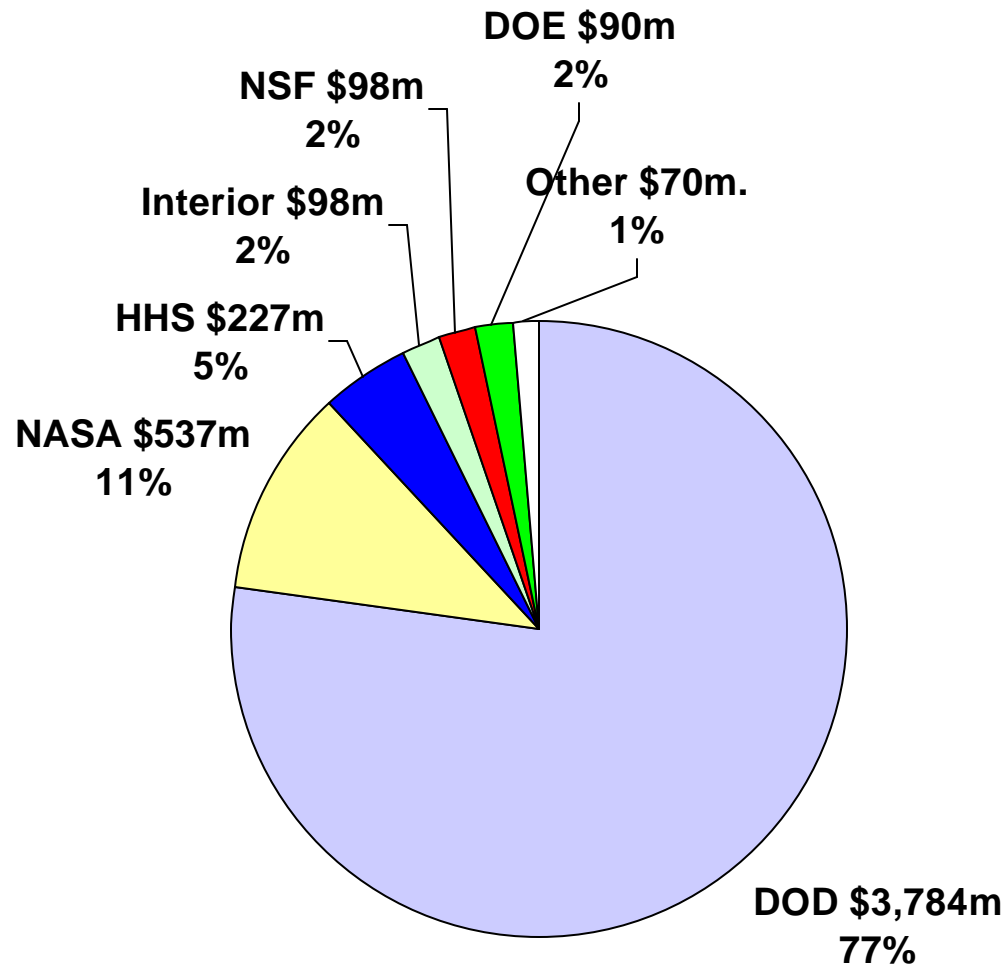
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- ◆ \$4.9 billion in federal R&D in FY 2000; 3rd behind CA and MD
- ◆ Mostly because of DOD headquarters; most DOD industry funds are actually subcontracted out of state
- ◆ \$1.5 billion to federal labs: DOD labs, USGS headquarters, NASA Langley and Wallops Flight Facility
- ◆ \$2.9 billion to industrial firms: DOD contractors, NASA contractors (most of it subcontracted)
- ◆ \$251 million to FFRDCs: DOD FFRDCs in Northern Virginia, DOE Thomas Jefferson Lab in Newport News

## Federal R&D to Virginia by Agency

FY 2000 (obligations in millions of dollars)

Total: \$4.9 billion



Source: National Science Foundation, Federal Funds for Research and Development, Fiscal Years 2000, 2001, and 2002, 2002.

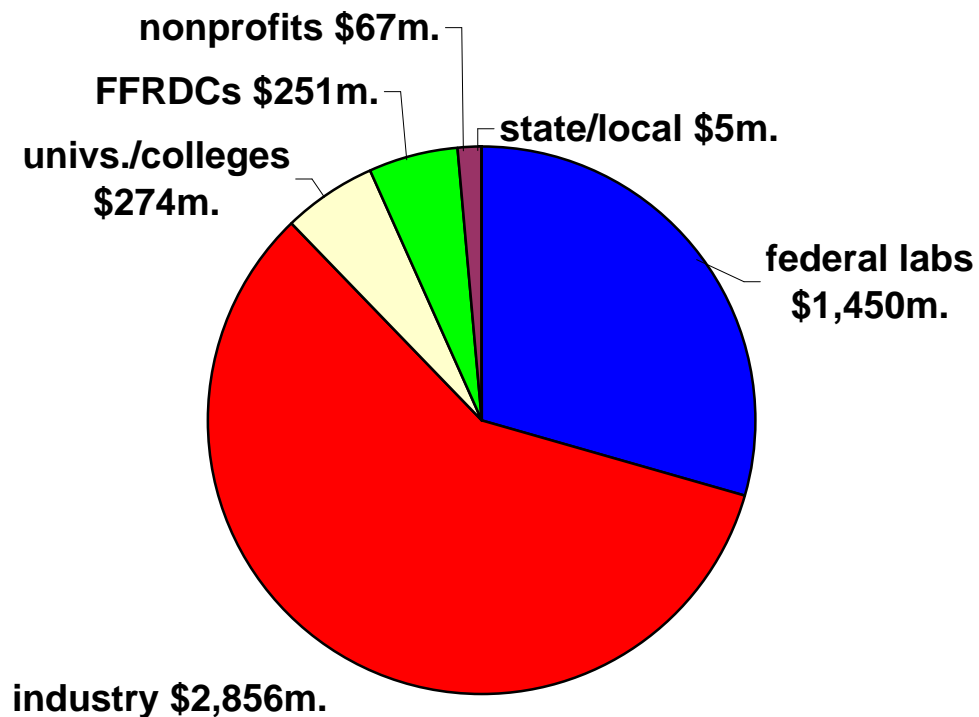
R&D = conduct of R&D and R&D plant.

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## Federal R&D to Virginia by Performer

FY 2000 (obligations in millions of dollars)

Total: \$4.9 billion



Source: National Science Foundation, Federal Funds for Research and Development, Fiscal Years 2000, 2001, and 2002, 2002.

R&D = conduct of R&D and R&D plant.

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# Federal R&D at Virginia Colleges and Univs.

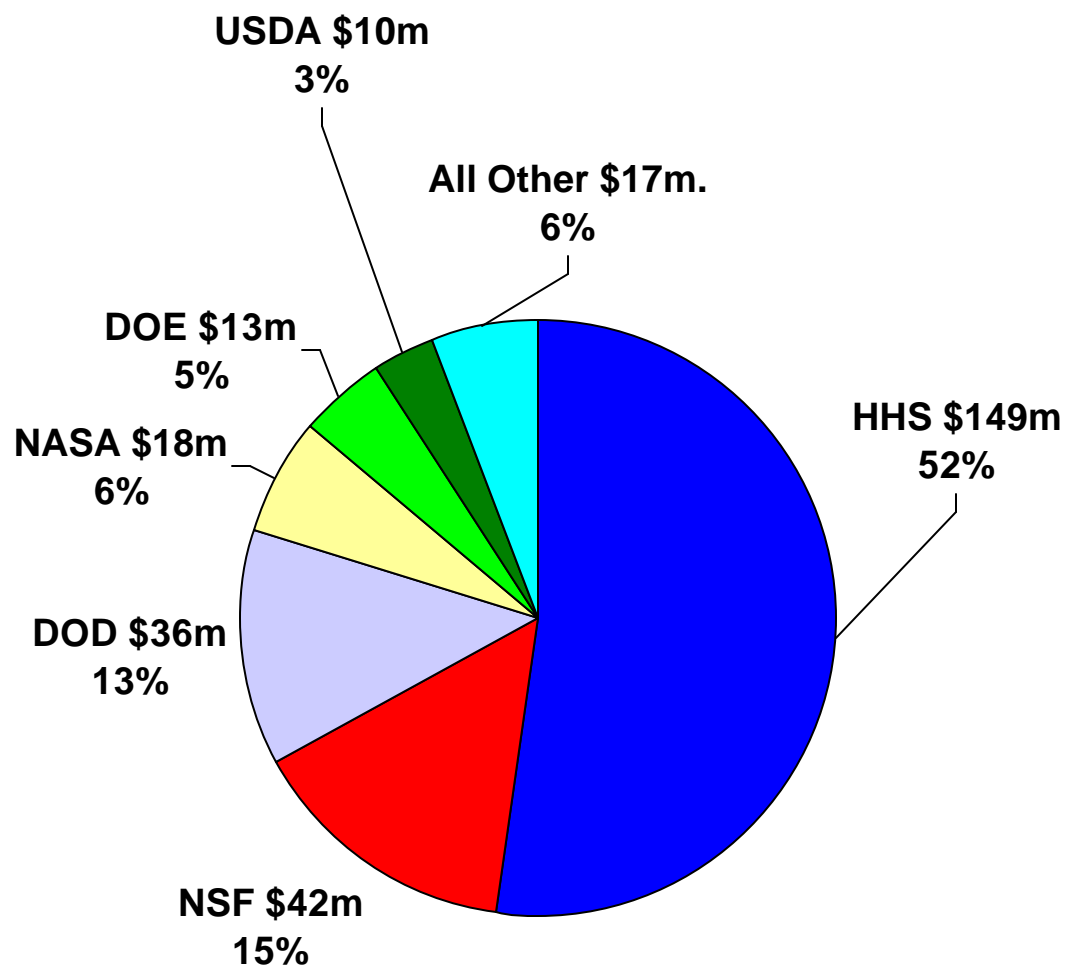
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- ◆ VA is home to 3 of the top 100 university recipients of federal R&D: U VA (45th), VCU (92nd), VA Tech (99th)
- ◆ Federal agencies spent \$286 million on academic R&D in VA in FY 2000 (1.6% of national total)
- ◆ VA universities rely on federal funds for 55% of their R&D
- ◆ HHS (NIH) provides the majority of federal support, followed by NSF, DOD, NASA, DOE

## Federal R&D to Virginia Universities and Colleges

FY 2000 (obligations in millions of dollars)

Total: \$286 million



Source: National Science Foundation, *Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions, FY 2000, 2002.*

R&D = conduct of R&D and R&D plant.

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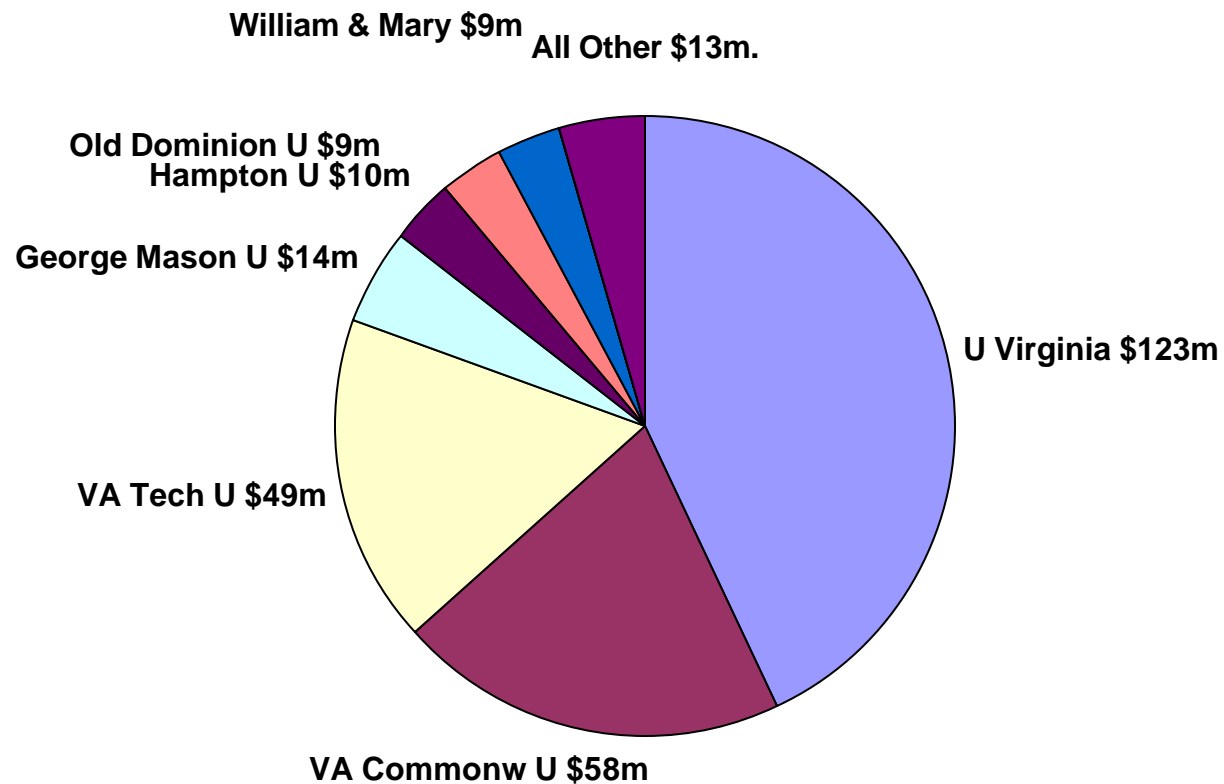


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Source: National Science Foundation, *Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions, FY 2000, 2002.*

R&D = conduct of R&D and R&D plant.

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# Historical Trends in Federal R&D to VA

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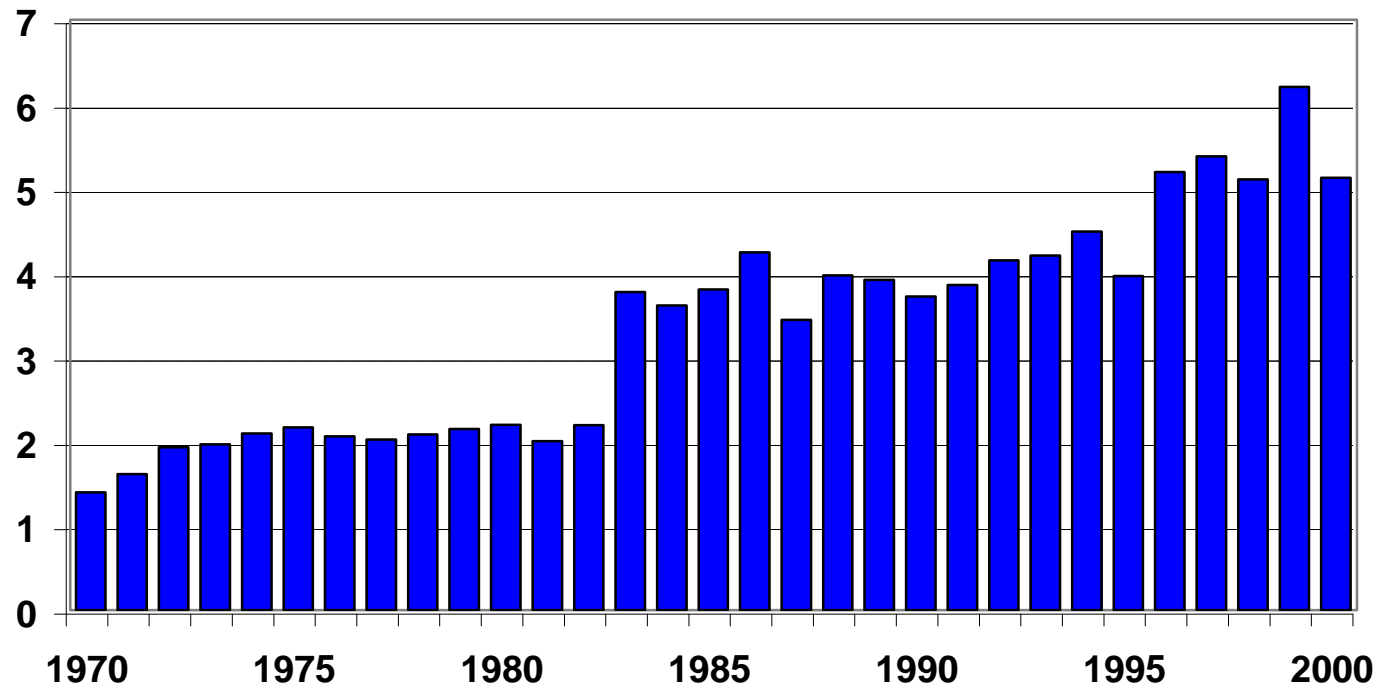
- ◆ Federal R&D funding has grown dramatically over time because of increased concentrations of DOD R&D work
- ◆ Unclear how much of this money remained in-state
- ◆ VA has increased its ‘market share’ of federal R&D over time because of DOD contracts
- ◆ VA universities’ ‘market share’ remains below 2.5% share of U.S. population



## What's Next?

- Congress writes FY 2004 appropriations bills, will try to approve tax-cut legislation
- Appropriations process will be a zero-sum game
- Unknown impact from the war and reconstruction of Iraq; supplemental appropriations will be necessary
- Defense and homeland security spending may increase, but unclear future for research as opposed to development
- Virginia's reliance on DOD will help, but other agencies' R&D portfolios could be in trouble

## Federal R&D to Virginia, FY 1970-2000 (billions of constant FY 2002 dollars)

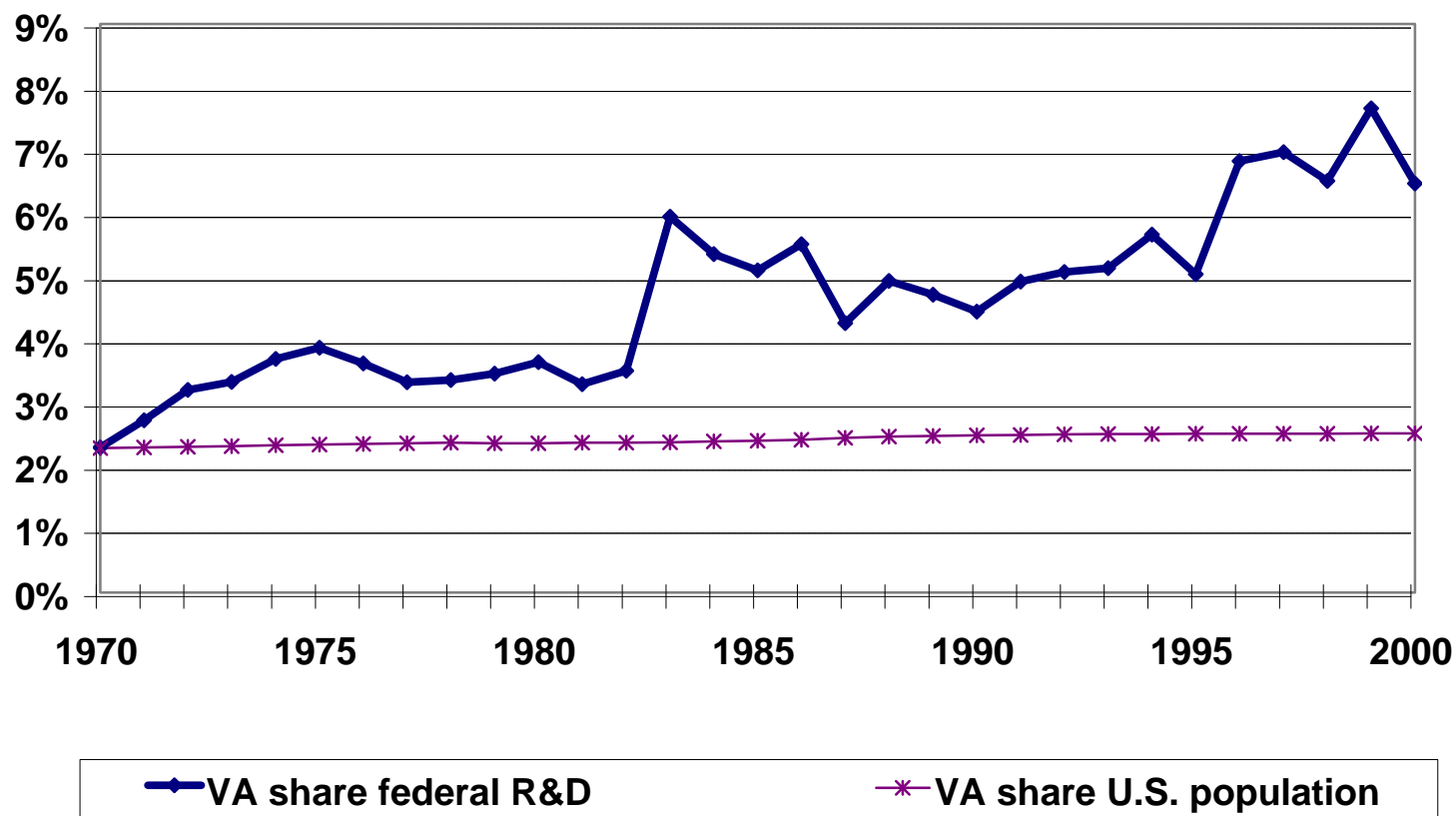


Source: National Science Foundation, Federal Funds for  
Research and Development Historical Tables, 2002.

R&D = conduct of R&D and R&D plan

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## Virginia share of federal R&D, FY 1970-2000 (percent of total federal R&D)



Source: National Science Foundation, Federal Funds for  
Research and Development Historical Tables, 2002.  
R&D = conduct of R&D and R&D plant.  
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